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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/656,337

Filing Date: September 08, 2003

Appellant(s): MIYAMOTO ET AL.

**MAILED**  
**APR 13 2007**  
**GROUP 1700**

Jonathan H. Backentose (47,399)  
For Appellant

**SUPPLEMENTAL EXAMINER'S ANSWER**

This is in response to the appeal brief filed January 31, 2007 appealing from the Office action mailed March 02, 2006.

This mailing includes heading (2) Related Appeals and Interferences  
and a statement regarding this which was missing from the original Examiner's Answer

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,761,950	Kojima et al.	07/2004
63-225935	Yamada et al.	09-1988

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

A) Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima et al. '950, in view of Yamada et al. JP 63-225935 (aka patent 2574325).

Kojima et al. '950 teach an optical recording medium as sample 11-2 having a structure of a substrate, a reflective bilayer, a lower dielectric layer, the recording layer and a second dielectric layer, where the recording layer is 11 nm thick and has a composition of Te 51%, Ge 45 % and Bi 4 % formed by sputtering on a grooved polycarbonate substrate. (57/45-58/65). The track pitch is disclosed with respect to example 1 as 0.615 microns. (33/9). The general use of GeBiTe, GeSnBiTe, GeTeBiSb reversible phase change recording layers is disclosed. (8/38-48). The thickness of the recording layer is 15 nm or less to reduce the diffusion of heat (8/61-65).

Yamada et al. JP 63-225935 (aka patent 2574325) in the examples, such as example 3, describe PMMA substrate coated with 80 nm ZnS, 100 nm of GeTeBi and 160 nm ZnS. The use of these is laser having powers of 6-12 mW at velocities of up to 20 m/sec is disclosed. (page 6(lower left and right columns.). The polygon 4 set forth by points A-D in the table on page 7 embraces the compositions bounded by B2,D2,D2,D6,C8 and B7 or B3,D3,D3,D5,C5 and B5 of the instant specification. The use of any compositions within the disclosed polygons is described as forming satisfactory rewritable recording media. (abstract)

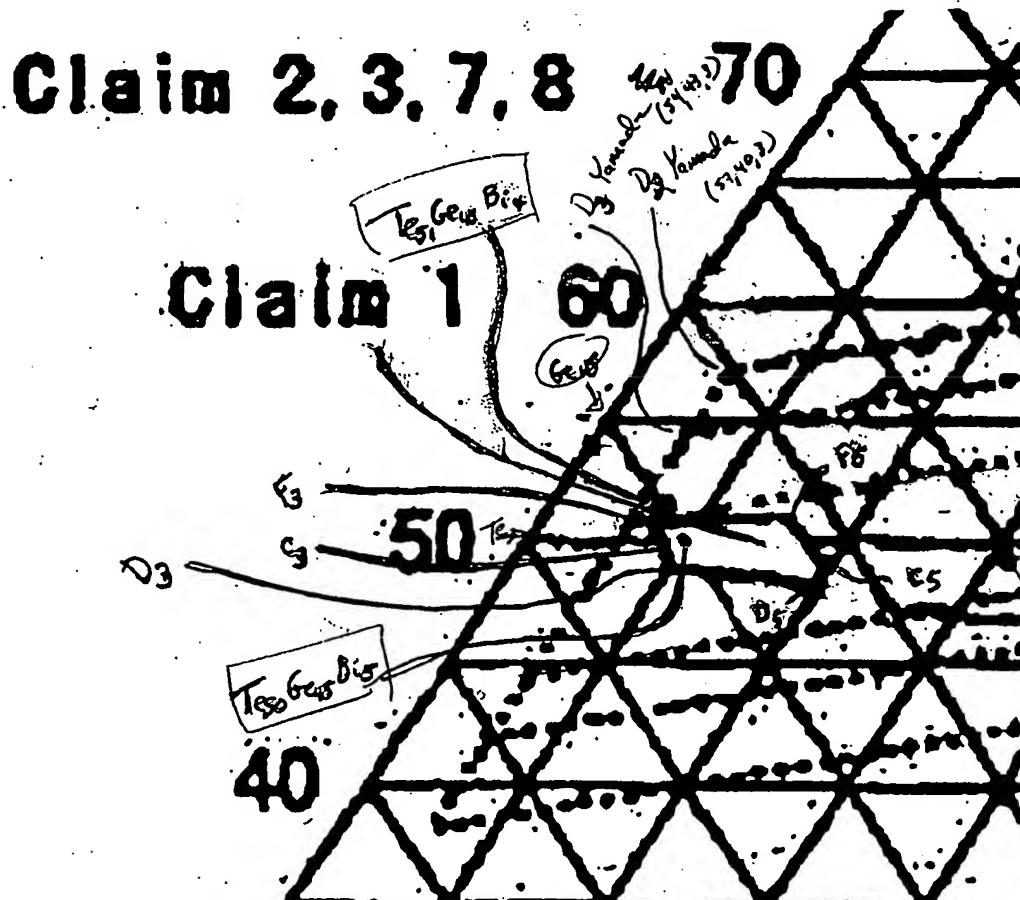
It would have been obvious to use compositions from within the polygon (ABCD)3 set forth by points A-D in the table on page 7 of Yamada et al. JP 63-225935, including  $\text{Te}_{50}\text{Ge}_{45}\text{Bi}_5$ , as the composition **in place of the  $\text{Te}_{51}\text{Ge}_{45}\text{Bi}_4$ , specifically used in example 11-2 of Kojima et al. '950** with a reasonable expectation of forming a useful optical recording medium based upon the disclosure that any composition within these polygons will form satisfactory rewritable recording media.

#### **(10) Response to Argument**

The applicant argues, that the single composition taught by Kojima et al. '950 is outside the polygon recited in the independent claims and therefore does not anticipate the claimed invention. The examiner agrees with this and also that due to the thickness limitation, Yamada et al. JP 63-225935 also does not anticipate the claimed invention. The rejection at hand is one of obviousness.

Detail of the appellant's figure 1 appearing on page 9 of the appeal brief, showing the location of the composition of  $\text{Te}_{50}\text{Ge}_{45}\text{Bi}_5$  (the composition considered obvious),  $\text{Te}_{51}\text{Ge}_{45}\text{Bi}_4$  (used in

example 11-2 of Kojima et al. '950), and the bounds of the claim 1 (with extraneous lines removed for clarity):



It is not clear to the examiner why data for Kojima et al '950 was not included as this is relevant to the issue at hand. It is also not clear why data for Kimura et al. JP 62-209741 is shown as the claims are not rejected on the basis of this reference.

The applicant asserts that the examiner has impermissibly combined the references and that motivation must be shown to suggest the combination. The position of the examiner is that

both  $\text{Te}_{50}\text{Ge}_{45}\text{Bi}_5$  and  $\text{Te}_{51}\text{Ge}_{45}\text{Bi}_4$  are within the polygon 4 of Yamada et al. JP 63-225935, and the composition held by the examiner as being obvious is also within polygon 4 which evidence recording at a linear velocity of 5 m/sec and high sensitivity/low laser power (8 mW/5mW) as evidenced by the table (page 7 in Yamada et al. JP 63-225935 and page 16 of English translation). These references are both directed to TeGeBi phase change optical recording media, which are able to be recorded upon, erased and re-recorded upon and so are analogous. The position of the examiner is that the substitution of  $\text{Te}_{50}\text{Ge}_{45}\text{Bi}_5$  as composition within the smaller polygon 3, for  $\text{Te}_{51}\text{Ge}_{45}\text{Bi}_4$ , which is within polygon 2, where polygon 4 describes materials having the ability to record at a linear velocity of 5 m/sec and low powers of 8 mW/5mW and the compositions differ by only 1% in the Te and Bi, would have been obvious to one of ordinary skill in the art at the time. Due to the small shift in the composition and the teachings of the table on page 7 (of recording velocity and recording power) of Yamada et al. JP 63-225935, there is a reasonable expectation of forming a useful optical recording media with similar performance to that example 11-2 of Kojima et al. '950. The bounding of both of these compositions by polygon 4 both suggests the change and provides a reasonable expectation of success. Further as evidenced by the figure 1 of the appeals brief at page 9 and discussed on page 12 at lines 19-22 of the appeal brief, the compositions of claims 1 are entirely bounded by polygon 2 of Yamada et al. JP 63-225935.

The applicant argues on pages 11-13, as if the presence of the sulfur in the  $\text{ZnS-SiO}_2$  dielectric layers of Yamada et al. JP 63-225935 renders the references incompatible. The claims lack any description of other layers and do not preclude sulfur containing dielectrics. The claim also is missing any recitation of the benefits argued and further, it is clear that any advancement,

such as thinner recording layers or barrier layers, described as useful with TeGeBi phase change recording layers by Kojima et al. '950 would reasonably be expected to confer any benefits realized to media using other, similar recording layers, particularly those taught by Yamada et al. JP 63-225935 and having such similar compositions. Further, the rejection merely replaces the recording layer of the medium of example 11-2 of Kojima et al. '950 with a similar composition taught by Yamada et al. JP 63-225935 and does not speak to the replacement of the other layers. This position is without merit.

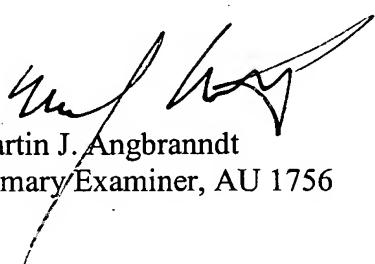
The applicant asserts certain benefits in the description on pages 5 and 6 of the brief. As discussed in the advisory action of January 8, 2007, these benefits are realized for the examples disclosed in the specification, which described the substrates as having grooves, a reflective layer, a dielectric layer, a boundary layer, the recording layer, a second boundary layer, a second dielectric layer and a UV curable protective layer, and so have much more structure than is recited in the claims. The examiner notes that the applicant has data for points B3 ( $\text{Te}_{51}\text{Ge}_{46}\text{Bi}_3$ ), C3 ( $\text{Te}_{50}\text{Ge}_{46}\text{Bi}_4$ ), and F3 ( $\text{Te}_{50.5}\text{Ge}_{46}\text{Bi}_{3.5}$ ) and all of these are described in the specification as having VG properties in figures 13, 12, 4 and 5 of the instant specification. These are also very similar in composition to  $\text{Te}_{50}\text{Ge}_{45}\text{Bi}_5$  (the composition considered obvious),  $\text{Te}_{51}\text{Ge}_{45}\text{Bi}_4$  (used in example 11-2 of Kojima et al. '950) and so the applicant has no evidence on the record to refute the obviousness on the basis of unexpected results, such as those described in pages 5-6 of the appeal brief.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



Martin J. Angbranndt  
Primary Examiner, AU 1756

Conferees:



Jenniffer Kolb-Michener  
Appeal Specialist



Mark F. Huff  
Supervisory Patent Examiner, AU 1756